

Claims

1. A method of simulating tracer fire from a weapon (400) by means of a non-ballistic fire simulation means (200) attached thereon, comprising:

5 projecting a light spot (320) into a visual field (240) of a user of the weapon (400) such that the light spot (320) is observable by the user when firing at a target (310), wherein the light spot (320) indicates a non-ballistic estimation of a point of impact for a simulated bullet;

10 turning on the light spot (320) at a first point in time (t_1) after triggering a simulated bullet; and

turning off the light spot (320) at a second point in time (t_2) after triggering the simulated bullet, a switched-on interval (t_{ON}) between the first point in time (t_1) and the second point in time

15 (t_2) overlapping a laser interval (T_{laser}) during which at least one light pulse (P_L) is transmitted from the fire simulation means (200) to simulate the bullet fired from the weapon (400) to the target (310).

2. A method according to claim 1, **characterized by** the first

20 point in time (t_1) coinciding with a point in time at which a first light pulse (P_L) is transmitted from the fire simulation means (200).

3. A method according to any one of the claims 1 or 2, **characterized by** the switched-on interval (t_{ON}) being substantially longer than the laser interval (T_{laser}).

4. A method according to any one of the preceding claims, **characterized by** preventing a light spot (320) from being turned on during an inhibiting interval (T_{block}) after that a previous light spot (320) has been turned on (t_1).

30 5. A method according to any one of the preceding claims,

characterized by varying at least one of the first point in time (t_1) and the second point in time (t_2) according to a stochastic algorithm.

6. A method according to claim 5, **characterized by** the stochastic algorithm being adapted to reflect a bullet light-up parameter of a particular type of tracer ammunition.
7. A method according to any one of the preceding claims, **characterized by** the estimated point of impact representing an endpoint (420) of a line of sight (430) from the muzzle (415) being parallel to a longitudinal symmetry axis of the barrel (410)
8. A method according to claim 7, **characterized by** the switched-on interval (t_{ON}) representing 1 – 20 % of an estimated time of flight (t_{flight}) between the muzzle (415) and the estimated point of impact for the corresponding live bullet
9. A method according to claim 8, **characterized by** calculating the estimated time of flight (t_{flight}) by means of a non-ballistic algorithm.
10. A computer program directly loadable into the internal memory of a digital computer, comprising software for accomplishing the steps of any of the claims 1 – 9 when said program is run on a computer.
11. A computer readable medium, having a program recorded thereon, where the program is to make a computer accomplish the steps of any of the claims 1 – 9.
12. A fire simulation means (200) for simulating tracer fire to a user adapted to be attached to a weapon (400), **characterized in that** it comprises:

- a light projecting means (210-230) adapted to project a light spot (320) into the user's visual field (240) such that the light spot (320) is observable by the user when firing at a target (310), wherein the light spot (320) indicates a non-ballistic
- 5 estimation of a point of impact for a simulated bullet, the light projecting means (210-230) being adapted to turn on the light spot (320) at a first point in time (t_1) after triggering a simulated bullet, and turn off the light spot at a second point in time (t_2) after triggering the simulated bullet, and
- 10 a laser unit (260) adapted to, during a laser interval (T_{laser}) after triggering the simulated bullet, transmit at least one light pulse (P_L) in a direction of the target (310) to simulate the fired bullet from the weapon (400) to the target (310), wherein a switched-on interval (t_{ON}) between the first point in time (t_1) and
- 15 the second point in time (t_2) overlaps the laser interval (T_{laser}).

13. A fire simulation means (200) according to claim 12, **characterized in that** the light projecting means (210-230) comprises:

- 20 a light source (220) adapted to produce visible light with a relatively narrow wavelength spectrum; and
- a wavelength selective mirror surface (230) adapted to reflect light within the relatively narrow wavelength spectrum, and permit transmission of a predominance of electromagnetic energy representing visible light of other wavelengths, wherein
- 25 the mirror surface (230) is arranged relative the light source (220) such that the light spot (320) occurs in the user's visual field (240) when aiming at the target (310).

- 30 14. A fire simulation means (200) according to any one of the claims 12 or 13, **characterized in that** the light projecting means (210-230) and the laser unit (260) are calibrated to one another such that the light spot (320) indicates a point to which the at least one light pulse (P_L) is transmitted.

15. A fire simulation means (200) according to any one of the claims 12 - 14, **characterized in that** it is adapted to be integrated into a standard sight means of the weapon (400) adapted for aiming live bullets.
- 5 16. A fire simulation means (200) according to any one of the claims 12 - 14, **characterized in that** it is adapted to represent an additional sight means to any standard sight means of the weapon (400) for aiming live bullets.